# HOMESTAKE MINING COMPANY
## NEW MEXICO

EPA ID# NMD007860935
Site ID: 0600816

EPA REGION 6
CONGRESSIONAL DISTRICT 02
Cibola County

**Other Names:**
United Nuclear Homestake Partners
UNC/Homestake
Update November 2004

## Site Description

**Location:**
- 5.5 miles north of Village of Milan in northwest New Mexico.

**Population:**
- Approximately 200 people live within a mile of the tailings piles.

**Setting:**
- Uranium mill
- Two tailings piles: a large pile covering 200 acres and 100 feet in height and a small impoundment covering 40 acres and 25 feet in height.
- Nearest residence is 3,000 feet away.
- Nearest drinking water well is 3,000 feet away.
- Threatened population in four subdivisions located 1/2 to two miles from tailings piles.

**Hydrology:**
- Tailings located on alluvium, overlying Chinle and San Andreas aquifers.
- Alluvium used as domestic water supply; deeper San Andreas is also an aquifer.
- Extensive injection/withdrawal system has altered shallow ground water flows and flushed alluvial and upper Chinle contamination under the State of New Mexico's Ground Water Discharge Plan (DP-200).

## Present Status and Issues

Homestake continues to operate the ground water extraction/injection system at the former mill site to dewater the large tailings impoundment and clean up ground water contaminated by tailings seepage. Collected ground water is piped either to the Reverse Osmosis (RO) plant for treatment and re-injection into the aquifers or two lined evaporation ponds for disposal. Homestake is also operating a secondary ground water extraction and irrigation system to remediate the down-gradient portion of the contaminant plume. The ground water restoration work is anticipated to continue beyond 2010.

Although levels of contaminants in ground water have decreased over time in portions of the aquifers, Homestake believes that background concentrations exceed established cleanup standards established by the U.S. Nuclear Regulatory Commission (NRC) and/or the New Mexico Environment Department (NMED). Homestake has submitted a proposal for alternate background levels at the Site, along with a statistical evaluation of ground water quality upgradient of the site to support the proposal. The Environmental Protection Agency (EPA) and NMED are currently reviewing those documents.

The large tailings impoundment is currently capped by a radon barrier and erosion-protection cover on its sides and an interim soil covers on its top. A final radon barrier will be constructed after the tailings are dewatered. It is estimated that dewatering of the large tailings impoundment will be completed in 2007. The small tailings impoundment is also capped by an interim soil cover. A final radon barrier will be constructed atop the small impoundment once the ground water restoration is complete and the remaining facilities are dismantled and disposed therein. This work is scheduled for completion in 2013.

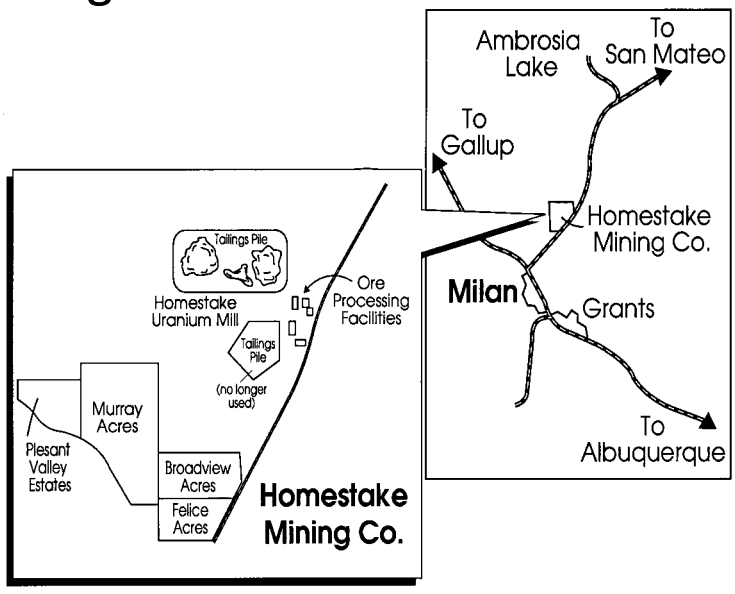
## Wastes and Volumes

- Principal Pollutants:
  - Alkaline mill tailings
  - Radium-226; 60-100 picocuries/1iter in tailings (soil)
  - Selenium: 1,200 parts per billion (ppb) (water)
  - Uranium: 720 ppb (water)
  - Radon: 0.03 Working Level (WL) (air)
- Volume:
  - Tailings piles - 22,225 million tons (large pile - 21 million tons, small pile - 1.225 million tons)

## Site Assessment and Ranking

**NPL LISTING HISTORY**
Site HRS Score: 35.21
Proposed Date: 12/30/82
Final Date: 9/08/83
NPL Update: Original

## Site Map and Diagram



## Site History

- Mill opened in 1958.

- Ground water contamination observed as early as 1961.

- NMED approved Homestake's Ground Water Discharge Plan (DP-200) in 1981 covering shallow aquifer restoration activities at the site.

- Homestake and EPA signed a consent decree for an alternate water supply in November 1983. Homestake was required to provide alternate permanent water supply to nearby residences and to pay for water usage for ten years.

- New Mexico radon study released for homes near mill in August 1983.

- Alternate water supply hookups to residences were completed in April 1985 and the water usage was paid for by Homestake until 1995. The EPA has since released Homestake from its obligations under the consent decree.

- Homestake signed an Administrative Order on Consent in June 1987 despite its position that any emissions of radon from Homestake's facility are "federally permitted releases" and that the company should not be liable for any study or response costs in connection with the Radon remedial investigation.

- EPA signed a Record of Decision (ROD) for the Radon Operable Unit on September 1989. The ROD called for No Action.

- The mill closed in 1990.

- EPA and the NRC signed Memorandum of Understanding (MOU) in 1993 designating NRC as the lead federal agency for remedial and reclamation activities. The EPA maintains an oversight role as set forth in the MOU.

- The mill was decommissioned and demolished and surface reclamation activities were conducted between 1993 and 1995 under the direction and oversight of the NRC, pursuant to Source Materials License No. SUA-1471. Surface reclamation activities included the excavation and on-site disposal of soils contaminated with windblown tailings and the construction of radon barrier (soil) covers and erosion protection covers (rock layers) on the perimeters of the tailings piles. A 1-foot thick interim soil cover has been placed atop the tailings piles to protect against erosion while the tailings are dewatered.

- EPA completed the first Five-Year Review in September 2001. Based on that review, EPA considers the ongoing remedy to be protective of human health and the environment in the short-term, and expects it to be protective in the long-term as remedial efforts continue.

- Several hundred people depended upon the shallow aquifer as a water supply; an alternate water supply was provided to nearby residences in 1985 by Homestake under a Consent Decree with EPA.

- Seepage from the two tailings piles has contaminated the shallow aquifer and portions of the Upper Chinle aquifers. Possible emissions of radon from the tailings piles on Homestake's property may have increased the concentration levels of radon in adjacent subdivisions.

## Record of Decision

Signed: Consent Agreement in November 1983 (Ground Water)
No Action ROD September 27, 1989 (Radon)

- Ground water remedy: There is no EPA decision document for ground water remedy at this site. NRC, EPA and NMED are currently working together to establish revised cleanup levels for ground water restoration as some of the originally proposed standards have changed or not appropriate anymore. The residents of the surrounding communities have been provided with an alternate water supply to ensure the health of the residents are protected. Homestake provided for the extension of the Village of Milan municipal water system to those homes and payed for the residents' use of that water supply for 10 years under a consent decree (Agreement and Stipulation) signed with EPA in 1983.

- No action was necessary to address radon, therefore, a No-Action ROD was issued by EPA.

## Community Involvement

- Community Involvement Plan: Developed 09/87.
- Open houses and workshops: 10/86, 10/87. Next Planned: 12/04
- Original Proposed Plan Fact Sheet and Public Meeting: 07/89.
- Original ROD Fact Sheet: 10/89.
- Milestone Fact Sheets: No Further Action.
- Citizens on site mailing list: 109
- Site Repository: New Mexico State University, Grants Library, 1500 Third Street, Grants, NM 87020

## Technical Assistance Grant

- Availability Notice: 01/89
- Letters of Intent Received: None
- Grant Award: N/A

## Contacts

- **Remedial Project Manager (EPA):** Sai Appaji, 214.665.3126 (6SF-LP)
- **State Contact:** Kevin Myers 505.827.2906
- **Nuclear Regulatory Commission Contact**: Bill Von Till, 301.415.6251
- **Community Involvement (EPA):** Robert Johnson, 214.665.6676 (6SF-PO)
- **Attorney (EPA):** Pamela Travis, 214.665.8056
- **EPA Ombudsman:** Arnold Ondarza, 800.533.3508
- **State Coordinator (EPA):** Kathy Gibson 214.665.7196
- **Prime Contractor:** None

## Benefits

- The initial action to connect the nearby residences to the municipal water supply provided a safe drinking water supply. Also, the study on indoor radon levels showed that site contamination was not contributing to elevated indoor radon levels found in some area homes.

- The contaminant plume has been driven back almost 3/4 mile into the site boundaries of HMC by injecting fresh water down-gradient of the site. Nearly 4.5 billion gallons of contaminated water have been removed and 540 million gallons of treated water has been reinjected into the aquifer. The NRC is requiring that the Corrective Action Plan include clean-up of off-site contamination and require that the licence be amended accordingly as well.

- Reverse gradient injection has assured that contaminants in the ground water would not expand into the shallow aquifer, thus making the shallow water potentially usable in the down gradient areas. Once the tailings piles have been closed, the site will be transferred to DOE under general license.